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Are decreases in drug use risk associated with reductions in HIV sex risk behaviors among adults in an urban hospital primary care setting?

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ABSTRACT

Drug use is associated with increased sexual risk behaviors. We examined whether decreases in drug use risk are associated with reduction in HIV-related sex risk behaviors among adults. Data was from a cohort of participants (n = 574) identified by drug use screening in a randomized trial of brief intervention for drug use in an urban primary care setting. Inverse probability of treatment weighted (IPTW) logistic regression models were used to examine the relationship between decreases in drug use risk and sex-related HIV risk behavior reduction from study entry to six months. Weights were derived from propensity score modeling of decreases in drug use risk as a function of potential confounders. Thirty seven percent of the study participants (213/574) reported a decrease in drug use risk, and 7% (33/505) reported decreased sex-related HIV risk behavior at the six-month follow-up point. We did not detect a difference in reduction of risky sexual behaviors for those who decreased drug use risk (unadjusted: OR 1.32, 95% CI 0.65–2.70; adjusted OR [AOR] 1.12, 95% CI 0.54–2.36). Adults who screened positive for high drug use risk had greater odds of reducing sex risk behavior in unadjusted analyses OR 3.71, 95% CI 1.81–7.60; but the results were not significant after adjusting for confounding AOR 2.50, 95% CI 0.85–7.30). In this primary care population, reductions in HIV sex risk behaviors have complex etiologies and reductions in drug use risk do not appear to be an independent predictor of them.

1. Introduction

More than three decades after the first cases of human immunodeficiency virus (HIV) infections were reported, HIV transmission remains a serious public health problem. The Centers for Disease Control and Prevention (CDC) estimates that there are approximately 50,000 newly infected persons each year, with the majority of infections resulting from unprotected sexual contact (Centers for Disease Control and Prevention, CDC, 2013a, 2014). Racial and ethnic minority groups, particularly, Black/African Americans, are disproportionately affected by the HIV/AIDS epidemic, more so than any other racial or ethnic minority group (Centers for Disease Control and Prevention, CDC, 2015, 2016). Alcohol and other drug use are considered important risk factors for the transmission of sexually transmitted infections (STIs) including HIV (Centers for Disease Control and Prevention, CDC, 2013b; Metrik et al., 2016; Raj et al., 2009; Shuper et al., 2009; Vagenas et al., 2015). The primary pathway is thought to be reduction in inhibition and reasoning ability with concomitant increase in sex risk behaviors such as unprotected sexual intercourse, having multiple sex partners, and participation in survival and transactional sex (Hedden et al., 2011; Justus et al., 2000; MacDonald et al., 2000).

Drug use is associated with sex risk behaviors including non- and inconsistent condom use, having multiple sex partners, and unprotected transactional sex (sex for drugs or money), (Bonar et al., 2014; Booth et al., 1993, 2000; Broz et al., 2014; Hedden et al., 2011). Marijuana use is a contributing factor in HIV risk behaviors (Anderson and Stein, 2011; Hittner and Kennington, 2008), with users more likely to report multiple sexual partners (Valera et al., 2009). Further, Marijuana users are at increased risk of sexually acquiring HIV (Fernandez et al., 2004) and other sexually transmitted diseases (De Genna et al., 2007). Cocaine and opiate using populations are at greater risk for HIV infection (Booth et al., 2000; Metzger et al., 1993), and are more likely

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to have co-occurring medical and psychiatric conditions (McLellan et al., 2000). Interventions addressing drug use have the potential to mitigate negative health consequences and HIV related risk behaviors such as sex risk (Henry-Edwards et al., 2003; Saitz et al., 2010). HIV prevention efforts specific to at-risk adult populations have shown an effect in reducing HIV related risk behaviors (Copenhaver et al., 2006; Crepaz et al., 2007; Herbst et al., 2005, 2007; Johnson et al., 2002; Neumann et al., 2002; Semaan et al., 2002). Prevention interventions in sexually transmitted disease (STD) clinics (Kamb et al., 1998), outpatient based drug treatment facilities (Woody et al., 2003) and inpatient addiction treatment settings (Samet et al., 2008) have an effect on decreasing HIV risk behaviors. However, HIV risk assessments and risk reduction interventions are seldom applied in primary care settings (Wenrich et al., 1997). Little is known about the relationship between decreases in drug use and reduction in sex risk behaviors among adults in primary care settings.

Primary care clinicians and practitioners can play a vital role in facilitating HIV-risk related behavior change for individuals at risk for HIV and other STIs. Primary care settings are thought to provide an important opportunity to identify and deliver interventions to reduce drug use (Bernstein et al., 2005; Babor et al., 2007; Humeniuk et al., 2012; Saitz, 2014). Brief interventions that identify and address drug use behaviors in primary care settings have the potential to reduce drug use and subsequent consequences. For example, addressing drug use during a brief intervention could directly or indirectly motivate individuals to reduce involvement in sex risk behaviors (e.g. condom use, reducing the number of sex partners). However, limited data exist about the relationship between decreases in drug use and reduction in sex risk behaviors among drug using adults who are engaged in brief interventions in primary care settings.

We sought to examine whether decreases in drug use risk are associated with reductions in HIV sex risk behaviors among adults who screened positive for drug use, and those with high drug use severity (consistent with dependence). We hypothesized that decreases in drug use risk are associated with reductions in HIV sex risk behaviors for adults who screened positive for drug use, as well as those with drug dependence.

2. Materials and methods

Data originated from the Assessing Screening Plus Brief Intervention's Resulting Efficacy to Stop Drug Use (ASPIRE) study, a 3-group randomized controlled trial of two brief interventions for unhealthy drug use among adult patients in an urban primary care setting, that did not detect differences by type of intervention (Saitz et al., 2014). Details about the assessments, interventions and randomization are previously reported (Saitz et al., 2014 including supplementary online content).

2.1. Study population

Our analysis sample was comprised of adults 18 years or older who were enrolled and randomized in the ASPIRE study, and who also completed the 6 month follow-up interview (n = 574). Participants were enrolled in the study (n = 589) if they screened positive for past 3-month drug use on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) (Humeniuk et al., 2008). For this analysis, we included all study participants who reported a total ASSIST score of 2 or greater at baseline, indicating some drug use at least once in the past 3 months. This measure allowed for the opportunity to assess reduction in drug use for participants who engaged in low to high drug use risk levels. Note: Saitz et al., 2014 reports only results among participants with ASSIST scores of 4 or greater indicating weekly or more drug use in the past three months, with drug use ranging from moderate to high risk levels (Humeniuk et al., 2008; Saitz et al., 2014).

2.2. Measures

2.2.1. Outcome

Reduction in HIV sex risk behaviors (yes vs. no), the primary outcome of this study, was defined based on whether a subject reported fewer unsafe sex practices at the 6-month follow-up compared to baseline. The number of unsafe sex practices at each time point was determined based on condom use and other sex risk behaviors response items. Study participants completed assessments of HIV sex risk and drug use risk behaviors in the past three months (Navaline et al., 1994) using an audio-computer-assisted self-interviewing (ACASI) system at baseline and six month interviews. The ACASI system has been shown to increase disclosure and veracity in responses to sensitive and often stigmatized HIV sex risk behavior questions (Rogers et al., 2005). Unsafe sex was operationalized as the number of times the subject self-reported non-condom use during vaginal or anal intercourse in the past 3 months in the following scenarios: a) having sex with non-primary partner; b) engaging in currency transactional sex (i.e., paid money for sex or received money for sex); and c) engaging in drug transactional sex (i.e., given drugs for sex or received drugs for sex). We calculated the difference in total number of self-reported unsafe sex practices at six months and baseline interview periods (6 month minus baseline). A reduction in unsafe sex was fewer number of unsafe sex episodes at six months. Operationalizing the outcome as a dichotomous variable was considered more clinically interpretable and relevant for these risk behaviors. The rationale for this is that, participants reporting non-condom use with non-primary and transactional partners during either vaginal or anal intercourse, would be at increased the risk for HIV transmission regardless of number of encounters.

2.2.2. Independent variables

Participants were assessed for drug use risk using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) at baseline and in six month follow-up interviews (Humeniuk et al., 2008). The clinical question of interest for this study was to evaluate any decrease in drug use, this was considered the most clinically relevant main independent variable. The main independent variable, decrease in drug use risk (yes/no), was therefore operationalized as any reduction in the total ASSIST score at six month follow-up compared to baseline (6 month value minus baseline value). Participants who indicated a lower ASSIST score at the six month follow-up period were categorized as "yes = decreased drug use risk" while those who had increased or same scores at follow-up were categorized as "no = same or increased drug use risk". The ASSIST score identifies risk of health and other problems from the participant's current pattern of use (Humeniuk et al., 2008), therefore, the term "drug use risk" is used in this study to appropriately measure more than use. The choice to use the binary independent variable allowed us to study the association between decrease in drug use risk and decrease in sex risk in a manner that is clinically relevant, rather than examining this relationship using decrease in points on a scale such as the ASSIST that in our study ranges from 2 to 131.

In secondary analyses, we further explored the relationship between reduction in HIV sex risk and drug use risk by examining adults who screened positive for high drug use risk (consistent with dependence) at study entry compared to those with low to moderate risk. We used a binary Alcohol, Smoking, and Substance Involvement Screening Test [ASSIST] score operationalized as ≥27 = high risk of experiencing severe health, social and other problems as a result of current pattern of use and are likely to be dependent and; ≤26 = low and moderate risk of health and other problems. The operationalization of this measure has a clinical and practical basis as participants with higher ASSIST scores are thought to need drug treatment (Humeniuk et al., 2008), and thus a threshold for tailoring interventions and treatment for individuals experiencing severe problems.